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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,652	04/14/2004	Norio Imaoka	119120	4959
25944	7590	01/18/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			CLARK, SHEILA V	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/823,652

**Applicant(s)**

IMAKA, NORIO

**Examiner**

S. V. Clark

**Art Unit**

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 16-22 and 24-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 9, 11 and 23 is/are rejected.
- 7) ☒ Claim(s) 7, 10, 12-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 2823

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, 11, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsunashima.

Tsunashima shows a optical device having at least a first top semiconductor substrate 2 with an optical part 13 or 11 (and col. 12, lines 20-25 teaches that an optical mechanism could be installed onto a chip) and first top pad 7 (described as 7 but shown in figure 1 as 4) is shown fixedly formed on the top surface of chip 2 by way of interconnecting layer 3 and a second semiconductor substrate having an integrated circuit and a second pad 7 under the first semiconductor.

A through hole s shown continuously extending through the first and second substrates and a conductive part 4 formed inside of said hole.

Said optical part of shown formed on a top side of upper substrate 2. As the claim only recites an "optical part", the alignment hole (formed in the substrate) may be formed with laser beam transmitting material which is also an optical part.

Insulating layer 6 can be seen formed in the inside of said through hole.

Said conductive part is shown electrically connected on a side to external bump connections 9 and another chip.

An intermediate insulating layer 31 is shown interposed between said substrates.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsunashima in view of Kaurachima et al.

The features of Tsunashima from which 9 depends have been discussed above except for a resin layer formed on the side surface of the second chip.

Kaurachima et al shows a resin layer 22 on the side surface of each stacked chip.

It would have been therefore obvious to one having ordinary skill in this art to form a resin layer on the side surface of the second substrate of Kaurachima for the purpose of providing a protective layer, improved support and improved thermal resistance.

Claims 1-6, 8, 9, 11, 23 are rejected.

Claims 7, 10, 12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed 10-26-2006 have been fully considered but they are not persuasive. The reference relied upon in the rejection remain applicable to teach the features of the instant invention as they are currently recited. Applicant argues that the reference to Tsunashima fail to teach a through-hole continuously extending through a first and second semiconductor substrate. Tsunashima does show a though hole shown at 4 in figure 1 continuously extending through a first and second semiconductor substrate. Said claims to not however recite that the through hole must extend from one chip to another chip as argued by the applicant. A hole extending through a first and second substrate does not have to connect said substrates.


The term "optical part" recited in the claims is very broad and could be an array of components including material. The optical part 13 or 11 may be formed on the semiconductor substrate and col. 12, lines 20-25 teach that an "optical mechanism" or part may be installed on the chip. Further the alignment hole (formed in the substrate) may be formed with laser beam transmitting material which is also an "optical part". These are all taught to be formed on or in the semiconductor substrate.

The features of the claims as they are broadly recited are deemed to be substantially taught by Tsunashima et al.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to S. V. Clark at telephone number (571) 272-1725.

  
S. V. Clark  
Primary Examiner  
Art Unit 2823

January 6, 2006